Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

What is claimed is:

1. (Original) A radio frequency switching power amplifier comprising:

an amplifier having a frequency selective response, the amplifier operable to amplify an input signal at an intermediate frequency to provide an output signal;

an analogue to digital converter (ADC) coupled to the output signal and operable to provide a discrete output signal;

an encoder coupled to the discrete output signal and operable to provide an encoded signal at a radio frequency;

a switching amplifier coupled to the encoded signal and operable to provide an amplified signal; and

a feedback processor operable to provide a feedback signal that corresponds to the amplified signal and that has been converted to the intermediate frequency, the feedback signal combined with a signal corresponding to a base band signal to provide the input signal for the amplifier.

2. (Original) The radio frequency switching power amplifier of claim 1 wherein the amplifier having a frequency selective response further comprises a transconductance-capacitor filter having a band pass response.

3. (Original) The radio frequency switching power amplifier of claim 2 wherein the transconductance-capacitor filter further comprises a plurality of stages of transconductance-capacitor filtering.

4. (Original) The radio frequency switching power amplifier of claim 1 wherein the ADC further comprises one of a 1 bit ADC and a multi-bit ADC.

5. (Original) The radio frequency switching power amplifier of claim 1 further comprising a compensation circuit coupled from an output to an input of the ADC and arranged to combine a portion of the discrete output signal with the output signal to provide a resultant signal at the input of the ADC.

6. (Original) The radio frequency switching power amplifier of claim 1 wherein the encoder further comprises a Manchester encoder coupled to a clock signal to provide the encoded signal, where the encoded signal includes an output transition corresponding to a state of the discrete output signal for each cycle of the clock signal.

7. (Original) The radio frequency switching power amplifier of claim 6 wherein the Manchester encoder is clocked at a rate comprising one of the radio frequency minus the intermediate frequency and the radio frequency plus the intermediate frequency.

8. (Original) The radio frequency switching power amplifier of claim 6 wherein the ADC is clocked according to the clock signal.

9. (Original) The radio frequency switching power amplifier of claim 8 further comprising a clock generator operable to provide the clock signal at a clock rate to adjust the radio frequency to a desired radio frequency.

10. (Original) The radio frequency switching power amplifier of claim 9 wherein the clock generator is coupled to a reference oscillator with a frequency that varies with the frequency selective response of the amplifier.

11. (Original) The radio frequency switching power amplifier of claim 1 wherein the switching amplifier comprises one of a class S, a class D, a class E, and a class F switching amplifier.

12. (Original) The radio frequency switching power amplifier of claim 1 wherein the feedback processor further comprises a chopping mixer for converting a mixer input signal at the radio frequency to a mixer output signal at the intermediate frequency.

13. (Original) The radio frequency switching power amplifier of claim 1 wherein the feedback processor further comprises compensation circuitry for adjusting one of a gain, a phase, and a time delay of the feedback signal.

14. (Original) The radio frequency switching power amplifier of claim 1 wherein the encoder is operable to provide the encoded signal at one of a first radio frequency in a first transmit frequency band and a second radio frequency in a second transmit frequency band.

15. (Original) The radio frequency switching power amplifier of claim 14 wherein the encoder is clocked at a first clock rate to provide the encoded signal at the first radio frequency and at a second clock rate to provide the encoded signal at the second radio frequency.

16. (Original) The radio frequency switching power amplifier of claim 15 wherein the encoder performs Manchester encoding to provide the encoded signal at the first radio frequency and chopped nonreturn-to-zero encoding to provide the encoded signal at the second radio frequency.

17. (Original) The radio frequency switching power amplifier of claim 15 wherein the second clock rate and the first clock rate vary by a factor approaching two.

18. (Original) The radio frequency switching power amplifier of claim 1 arranged and constructed for utilization in one of a wireless communication unit and a wireless base station.

19. (Original) A radio frequency (RF) switching power amplifier comprising:

a switching amplifier operable to provide an amplified signal within an RF band; and

a delta signal modulator (DSM) operable;

to control the switching amplifier in a feedback configuration,

to process an input signal within an intermediate frequency (IF) band, the input signal corresponding to a base band signal and the amplified signal, and

to provide an output signal within the RF band to drive the switching amplifier.

20. (Original) The radio frequency switching power amplifier of claim 19 wherein the DSM further comprises an encoder operable to convert an IF signal within the IF band that corresponds to the input signal to an RF signal within the RF band that corresponds to the output signal.

21. (Original) The radio frequency switching power amplifier of claim 20 wherein the encoder is operable to convert the IF signal to one of a first RF signal within a first RF transmit band and a second RF signal within a second RF transmit band.

22. (Original) The radio frequency switching power amplifier of claim 21 wherein the encoder is clocked at a first clock rate to convert the IF signal to the first RF signal and at a second clock rate to convert the IF signal to the second RF signal.

23. (Original) The radio frequency switching power amplifier of claim 22 wherein the encoder performs Manchester encoding to convert the IF signal to the first RF signal and chopped nonreturn-to-zero encoding to convert the IF signal to the second RF signal.

24. (Original) The radio frequency switching power amplifier of claim 22 wherein the second clock rate and the first clock rate vary by a factor approaching two.

25. (Original) The radio frequency switching power amplifier of claim 20 wherein the encoder is one of a nonreturn-to-zero encoder, a return-to-zero encoder, a phase encoder and multilevel binary encoder.

26. (Original) The radio frequency switching power amplifier of claim 19 wherein the DSM further comprises a filter that has a band pass response and is operable to attenuate portions of the input signal outside of the intermediate frequency band.

27. (Original) The radio frequency switching power amplifier of claim 26 wherein the filter further comprises one of a transconductance-capacitor filter, a MOSFET-capacitance filter, and a transconductance-opamp-capacitance filter.

28. (Original) The radio frequency switching power amplifier of claim 19 wherein the DSM further comprises an analog to digital converter (ADC) operable to provide a discrete signal corresponding to a processed signal.

29. (Original) The radio frequency switching power amplifier of claim 28 wherein the ADC is one of a 1 bit ADC and a multi-bit ADC.

30. (Original) The radio frequency switching power amplifier of claim 28 wherein the DSM further comprises a compensation circuit coupled between an output and an input of the ADC.

31. (Original) The radio frequency switching power amplifier of claim 19 further comprising a feedback processor operable to convert an input signal corresponding to the amplified signal to a feedback signal within the IF band.

32. (Original) The radio frequency switching power amplifier of claim 31 wherein the feedback processor further comprises a chopping mixer clocked at a rate to convert an input frequency within the RF band to an output frequency within the IF band.

33. (Original) The radio frequency switching power amplifier of claim 32 wherein the feedback processor further comprises a feedback compensator for adjusting one of a gain and a phase of the feedback signal.

34. (Original) The radio frequency switching power amplifier of claim 19 wherein the DSM is implemented in an integrated circuit.

35. (Original) The radio frequency switching power amplifier of claim 19 arranged and constructed for deployment in one of a wireless communication unit and a wireless base station.

36. (Currently amended) The radio frequency switching power amplifier of claim 19 wherein the DSM further comprises:

a filter coupled to the input signal and having a bandpass response;

an analog to digital converter (ADC) coupled to a filter output; and

an encoder coupled to an ADC output for converting a signal within the IF band to the output signal.

37. (Original) The radio frequency switching power amplifier of claim 36 further comprising:

a chopping mixer coupled to the amplified signal to provide a feedback signal within the IF band.

38. (Original) The radio frequency switching power amplifier of claim 36 wherein the ADC and the encoder are coupled to and clocked according to a clock signal.

39. (Original) The radio frequency switching power amplifier of claim 38 further comprising a clock generator operable to provide the clock signal at a clock rate to adjust the radio frequency to a desired radio frequency.

40. (Original) The radio frequency switching power amplifier of claim 39 wherein the clock generator is coupled to a reference oscillator with a frequency that varies with variations in the intermediate frequency band.

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